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**(54) Photodynamic therapy balloon catheter with microporous membrane**

(57) A photodynamic therapy balloon catheter with microporous membrane is provided which has an elongated optical fiber, an inner tubular member, a porous balloon member surrounding the inner tubular member, and fluid material provided between the inner tubular member and the porous balloon member. The porous balloon member having a plurality of holes of a size to permit medication delivered through a lumen to pass

outwardly through the holes. The balloon carries on an outer surface a substantially hydrophilic, tubular microporous membrane covering the holes, to break up streams of flowing medication. Light-reflective material is included in any one or a plurality of the inner member, fluid material, porous balloon member, and microporous membrane in any combination to provide a uniform light illumination for activating treatment fluids located on an elongated treatment site within a living body.

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# EUROPEAN SEARCH REPORT

Application Number  
EP 97 30 5542

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	US 5 370 608 A (SAHOTA HARVINDER ET AL) 6 December 1994 * column 1, line 56 - column 2, line 8 * * column 4, line 11 - line 21 * ----	1	A61N5/06 A61M29/02
A	US 5 318 531 A (LEONE JAMES E) 7 June 1994 * the whole document * ----	1,9,10	
A	US 5 303 324 A (LUNDAHL SCOTT) 12 April 1994 * the whole document * ----	1,2,4	
A	US 5 514 669 A (SELMAN STEVEN H) 7 May 1996 * column 7, line 47 - line 52 * * column 7, line 61 - column 8, line 3 * ----	1,3	
A	WO 95 05866 A (CORTRAK MEDICAL INC) 2 March 1995 * page 2, line 31 - page 4, line 16 * * page 21, line 9 - page 22, line 21 * ----	1	
A	US 5 054 867 A (WAGNIERES GEORGES ET AL) 8 October 1991 * the whole document * -----	8	
The present search report has been drawn up for all claims			
Place of search <b>THE HAGUE</b>		Date of completion of the search <b>25 March 1999</b>	Examiner <b>Petter, E</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  &amp; : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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The members are as contained in the European Patent Office EDP file on  
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25-03-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5370608 A	06-12-1994	US 5417653 A	23-05-1995
US 5318531 A	07-06-1994	US 5213576 A	25-05-1993
		US 5405472 A	11-04-1995
US 5303324 A	12-04-1994	NONE	
US 5514669 A	07-05-1996	AU 684822 B	08-01-1998
		AU 7549994 A	18-04-1995
		CA 2168575 A	06-04-1995
		EP 0721312 A	17-07-1996
		JP 9502904 T	25-03-1997
		WO 9508949 A	06-04-1995
WO 9505866 A	02-03-1995	US 5498238 A	12-03-1996
		AU 7673694 A	21-03-1995
US 5054867 A	08-10-1991	AT 117213 T	15-02-1995
		CA 2033670 A	10-07-1991
		DE 59008307 D	02-03-1995
		DK 437181 T	20-03-1995
		EP 0437181 A	17-07-1991
		ES 2067013 T	16-03-1995
		JP 4297280 A	21-10-1992
		RU 2013098 C	30-05-1994

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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